

WHAT IS CLAIMED IS:

1. A circuit for monitoring resistance between the terminals of a battery and a first reference potential, said circuit comprising:

first and second inputs each of which is connectable to one of the terminals of the battery;

a voltage divider comprising first and second measurement resistors and having first and second external connections, each of which is connected to one of the inputs, and a central connection intermediate said first and second resistors, which central connection is to be connected to the first reference potential;

first and second switches, each of which is arranged in series in a connection between one of the external connections of the voltage divider and one of the inputs; and

a measuring instrument, connected to the external connections of the voltage divider, for supplying a monitoring signal which is representative of a voltage between the external connections.

2. The circuit as claimed in Claim 1, wherein said measurement resistors:

are each connected in series between the central connection and one of the first and second external connections of the voltage divider; and

are identical.

3. The circuit as claimed in Claim 1, wherein a protective resistor is connected in series in each connection between one of the external connections of the voltage divider and one of the inputs.

4. The circuit as claimed in claim 3, wherein the protective resistors are identical.

5. The circuit as claimed in Claim 1, further comprising a control unit for opening and closing the first and second switches in phase opposition.

6. The circuit as claimed in Claim 2, wherein the measurement resistors and protective resistors are ohmic resistors.

7. The circuit as claimed in Claim 1, wherein the measuring instrument is a differential amplifier.

8. The circuit as claimed in Claim 7, wherein:

the differential amplifier is connected to a second reference potential as a supply potential; and

a test voltage source is provided having two terminals, one terminal being connected to a point on the circuit which conducts the second reference potential, and the other terminal being connected to one of the external connections of the voltage divider via a third switch.

9. The circuit as claimed in Claim 8, wherein:

the switches, the resistors and the measuring instrument are combined in a single structural unit;

the central connection of the voltage divider is connected by means of a first line to the first reference potential; and

the second reference potential is defined by a second line which connects the point on the circuit to the first reference potential.

10. A vehicle having a battery and a circuit as claimed in Claim 1, wherein the first reference potential is the vehicle ground.

11. A method of operating a circuit for monitoring resistance between the terminals of a battery and a first reference potential, said circuit having first

and second inputs each of which is connectable to one of the terminals of the battery; a voltage divider comprising first and second measurement resistors and having first and second external connections, each of which is connected to one of the inputs, and a central connection intermediate said first and second resistors, which central connection is to be connected to the first reference potential; first and second switches, each of which is arranged in series in a connection between one of the external connections of the voltage divider and one of the inputs; and a measuring instrument, connected to the external connections of the voltage divider, for supplying a monitoring signal which is representative of a voltage between the external connections, said method comprising:

closing the first switch and opening the second switch;

sensing a first voltage which is applied to the measuring instrument;

opening the first switch and closing the second switch;

sensing a second voltage which is applied to the measuring instrument; and

detecting an insulation fault if one of the sensed voltages exceeds a limiting value.

12. The method as claimed in Claim 11, further comprising:

opening all switches sensing a voltage which is present at the measuring instrument; and

detecting a fault in the circuit if said voltage lies outside a setpoint range.

13. The method as claimed in Claim 11, further comprising:

opening the first and second switches and closing the third switch;

sensing a voltage which is applied to the measuring instrument;
and

detecting a fault in the circuit if the voltage lies outside a setpoint range.

14. The method as claimed in Claim 11, further comprising

closing the first, second and third switches;

sensing a voltage which is applied to the measuring instrument;
and

detecting a fault in the circuit if the voltage lies outside a setpoint range.